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10/694,674	10/28/2003	W. Nathaniel Mills III	YOR920030582US1	4242

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EXAMINER	
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ART UNIT	PAPER NUMBER
2129	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/694,674	MILLS ET AL.	
	Examiner	Art Unit	
	KALPANA BHARADWAJ	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered 10/01/2008 for the patent application 10/694,674 filed on 10/28/2003.

2. All prior office actions are fully incorporated into this Office Action by reference.

Status of Claims

3. Claims 1-27 are pending.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-27 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. The **"merging the second session with the first runtime of the first session to create a second runtime"** is not a result that has been outputted.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is useful,

tangible and concrete. If the claim is directed to a practical application of the § 101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S. C. § 101.

The "**method for authoring an analytical asset**" does not necessarily produce a practical application.

The invention must be for a practical application and either:

1) specify transforming (physical thing - article) or

2) have the Final Result (not the steps) achieve or produce a

useful (specific, substantial and credible),

concrete (substantially repeatable / non unpredictable), and

tangible (real world / non abstract) result

(tangibility is the opposite of abstractness).

However, the portions of the opinions in State Street and AT&T relying solely on a "useful, concrete and tangible" result analysis *should no longer be relied on*. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008.

The court has said that there's a two-pronged test to determine whether a software of business method process patent is valid: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. In other words, pure software or business method patents that are neither tied to a specific machine nor change something into a different state are not patentable. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008).

A claim that is so broad that it reads on both statutory and non-statutory subject matter must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended. Such is **"receiving a first session; creating a first runtime of the first session; receiving a second session; selection defining a path of execution of the analytical asset"**

Response to Arguments

5. Applicant's arguments filed 10/01/2008 regarding rejections under 35 USC §101 have been fully considered but they are not persuasive.

6. Regarding Applicant's arguments on page 8:

Applicant has argued that "output a weight of the first navigation path adapted to be compared against a weight of at least a second navigation path for selecting one of the first and second navigation path, the selection defining a path of execution of the analytic asset," satisfies the 101 requirement.

Examiner's response:

As per the above defined limitation, the output of the invention is "defining a path of execution." In the context of a graph (the applicant has defined a session to be an acyclic graph), a "path" is just an abstract data structure. Therefore, the examiner contends that there is no concrete, tangible and useful application that has been defined, and hence the claims are non-statutory.

[In Abele], we held unpatentable a broad independent claim reciting a process of graphically displaying variances of data from average values. *Abele*, 684 F.2d at 909. **That claim did not specify any particular type or nature of data; nor did it specify how or from where the data was obtained or what the data represented**. *Id.*; ... In contrast, we held one of Abele's dependent claims to be drawn to patent-eligible subject matter where it specified that "said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner." *Abele*, 684 F.2d at 908-09. This data clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.

... So long as the claimed process is limited to a practical application of a fundamental principle to transform **specific** data, and the claim is limited to a **visual depiction that represents specific physical objects or substances**, there is no danger that the scope of the claim would wholly pre-empt all uses of the principle.

This court and our predecessor court have frequently stated that adding a data-gathering step to an algorithm is insufficient to convert that algorithm into a patent-eligible process. *E.g.*, *Grams*, 888 F.2d at 840 (step of "deriv[ing] data for the algorithm will not render the claim statutory"); *Meyer*, 688 F.2d at 794 ("[data-gathering] step[s] cannot make an otherwise nonstatutory claim statutory"). ... **A requirement simply that data inputs be gathered—without specifying how—is a meaningless limit** on a claim to an algorithm because every algorithm inherently requires the gathering of data inputs. *Grams*, 888 F.2d at 839-40. Further, the inherent step of gathering data can also fairly be characterized as **insignificant extra-solution activity**. *See Flook*, 437 U.S. at 590. (See In re Bilski, 88 USPQ2d 1397-1398, emphasis added)

As a corollary, the *Diehr* Court also held that **mere field-of-use limitations are generally insufficient** to render an otherwise ineligible process claim patent-eligible. *See* 450 U.S. at 191-92 (noting that ineligibility under §101 "cannot be circumvented by attempting to limit the use of the formula to a particular technological environment"). ... Pre-emption of all uses of a fundamental principle in all fields and pre-emption of all uses of the principle in **only one field** both indicate that the claim is **not limited** to **a particular application** of the principle. *See Diehr*, 450 U.S. at 193 n.14 ("A mathematical formula *in the abstract* is nonstatutory subject matter regardless of whether the patent is intended to cover all uses of the formula or only limited uses.") (emphasis added). ...

The *Diehr* Court also reaffirmed a second corollary to the machine-or-transformation test by stating that "insignificant postsolution activity will

not transform an unpatentable principle into a patentable process." *Id.* at 191-92; *see also Flook*, 437 U.S. at 590 ("The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance."). The Court in *Flook* reasoned:

> A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean theorem would **not** have been patentable, or partially patentable, because a patent application contained a final step indicating that the formula, when solved, could be usefully applied to existing surveying techniques.

437 U.S. at 590. Therefore, **even if** a claim recites a specific machine or a particular transformation of a specific article, the recited machine or transformation **must not constitute mere "insignificant postsolution activity."** (See In re Bilski, 88 USPQ2d 1393, emphasis added)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gia (USPN 20010023390, referred to as **Gia**) and further in view of Bowman-Amuah (USPN 2003/0058277, referred to as **Bowman**).

Claim 1, 8:

Gia teaches a computer implemented method for authoring an analytic asset, comprising:

receiving a first session, wherein the first session is a directed, acyclic graph (**Gia,** ¶ 0023: a visibility graph and its tree structure; **EN:** a 'graph' includes directed, acyclic graphs) of a first test of the analytic asset (**Gia,** ¶ 0034: knowledge of the 'cost'; **EN:** 'cost' is read on an analytical asset);

creating a first runtime including the first session (**Gia**, ¶ 0034: organizes the graph of the search space; **EN:** 'organizing' is read on 'creating a first runtime');

receiving a second session, wherein the second session is a directed, acyclic graph (**Gia,** ¶ 0023: a visibility graph and its tree structure; **EN:** The visibility graph reads on both the first and second session) of a second test of the analytic asset (**Gia**, ¶ 0034: constraints of flight altitude -- reads on second test of the analytic asset); and

wherein the second runtime is queried to evaluate a first navigation path between the first test and the second test and output a weight of the first navigation path (**Gia,** ¶ 0008: navigation functions ... optimum flight plan) adapted to be compared against a weight of at least a second navigation path for selecting one of the first and second navigation path, the selection defining a path of execution of the analytic asset (**Gia,** ¶ 0032: Modeling of the Navigation Space).

Gia does not teach merging the second session with the first runtime of the first session to create a second runtime including the first session and the second session.

However, Bowman teaches merging the second session with the first runtime of the first session to create a second runtime including the first session and the second session (**Bowman**, ¶ 0521: sorting, merging, and moving large set of data).

Gia and Bowman are from the same field of endeavor, path management. It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with Bowman's merging of graph (sessions) for the benefit of extended visibility of space created by merging multiple graphs.

Claim 2:

Gia modified by Bowman teaches the method of claim 1, further comprising:

receiving an updated second session ((**Gia,** ¶ 0049: boundary type is updated; **EN:** boundary type is an attribute of the graph node, and reads on 'updating second session'); and

merging the updated second session with the first runtime of the first session to create a third runtime (**Gia,** ¶ 0049: reduce the number of vertices .. visibility graph; **EN:** the 'reduction of vertices' is done based on 'terrain features' wherein the terrain representation is merged with the graph to create a different version of the graph;).

Claim 3, 9:

Gia modified by Bowman teaches the method of claim 1, wherein the merging step comprises joining the first and second sessions at tests common to both sessions (**Gia,** ¶ 0028: elements of an octant are common).

Claim 4, 10:

Gia modified by Bowman teaches the method of claim 1, wherein the merging step comprises computing weights on navigation paths in the second runtime to optimize navigation during execution of the second runtime (**Bowman,** ¶ 4514: sort weights).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights on navigation paths, for the benefit of improving confidence levels.

Claim 5:

Gia modified by Bowman teaches the method of claim 1, wherein the step of creating a first runtime comprises establishing first weights associated with the navigation of the first session (**Bowman,** ¶ 4515: weight of that request).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights on navigation paths, for the benefit of improving confidence levels.

Claim 6, 11

Gia modified by Bowman teaches the method of claim 5, wherein the step of merging the first runtime with the second session comprises combining the first weights with second weights associated with the navigation of the second session (**Bowman**, ¶ 4515: weight of that request).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights on navigation paths, for the benefit of improving confidence levels.

Claim 7, 12:

Gia modified by Bowman the method of claim 1, further comprising the step of selecting a best route of navigation (**Bowman**, ¶ 0680: route and track forms)of the second runtime based on weights associated with tests in the second runtime (**Bowman**, ¶ 4515: weight of that request).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights on navigation paths, for the benefit of improving confidence levels.

Claim 13, 14:

Gia modified by Bowman teaches the method of claim 1, further comprising associating types of analysis with different entry points in the second runtime (**Gia**, ¶ 0072: types of hazards coverage).

Claim 15:

Gia modified by Bowman teaches the method of claim 8, wherein the step of authoring the second session comprises organizing analytic assets in a hierarchy (**Gia,** ¶ 0080: hierarchical decomposition).

Claim 16:

Gia modified by Bowman teaches the method of claim 8, wherein the step of authoring the second session comprises:

assigning a unique identifier to the second session (**Gia,** ¶ 0009: Each integer represents a node; **EN:** An 'integer' is a unique identifier); and

creating a directed acyclic graph of at least one test (**Gia,** ¶ 0054-0055: construction of a visibility graph is based on a set of waypoints ... test of a pair of waypoints).

Claim 17:

Gia modified by Bowman teaches the method of claim 16, wherein the step of creating a graph comprises assigning navigation weights (**Bowman,** ¶ 4515: weight of that request) between at least two tests (**Bowman,** ¶ 0792: typical benchmark tests).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights between tests, for the benefit of comparison of test results.

Claim 18:

Gia modified by Bowman teaches the method of claim 17, wherein the weights are assigned according to one or more of the following factors:

material costs; labor costs; engineering feedback regarding system or component operation; and historic feedback of actual system or component operation (**Bowman,** ¶ 0788-0794: developer costs; maintenance costs; ¶ 3036: receiving feedback).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with weights on navigation paths, for the benefit of improving confidence levels.

Claim 19:

Gia modified by Bowman teaches the method of claim 16, further comprising: authoring the at least one test to include a unique identifier (**Gia,** ¶ 0009: Each integer represents a node; **EN:** An 'integer' is a unique identifier) and an agent (**Bowman,** ¶ 1896: software agents).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with software agents for the benefit of autonomous control of navigational assets.

Claim 20:

Gia modified by Bowman teaches the method of claim 19, further comprising:

authoring the agent to include a unique identifier and a graph of beans (**Bowman**, ¶ 1896-1960: software agents; JavaBeans).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with graph of beans for the benefit of reusable components.

Claim 21:

Gia modified by Bowman teaches the method of claim 19, further comprising: authoring the agent to include a unique identifier and a graph of rulesets defining an analytic workflow (**Bowman,** ¶ 1896: software agents; ¶ 0140: rules to be applied).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with graph of rules for the benefit of logical inferencing on the graph components.

Claim 22:

Gia modified by Bowman teaches the method of claim 20, wherein at least one of said beans comprises a unique identifier, and software or machinery that is configured to perform data analysis or to process data for analysis (**Gia,** ¶ 0002: terrain data processing and algorithms).

Claim 23:

Gia modified by Bowman teaches the method of claim 21, further comprising:

authoring the ruleset to include a unique identifier (**Gia**, ¶ 0009: Each integer represents a node; **EN:** An 'integer' is a unique identifier), a collection of rules able to be executed to perform analysis (**Bowman**, ¶ 2214: Business Logic; business rules and procedures), and supporting statements that define access to data in support of the analysis (**Bowman**, ¶ 2214: Data Abstraction).

It would have been obvious to one of ordinary skill in the art to have modified Gia's navigation system with rules to support data for the benefit of logical inferencing on the graph components.

Claim 24:

Gia modified by Bowman teaches the method of claim 21, wherein at least one of said rules comprises an optional unique identifier, and a statement to enable analysis to be performed (**Gia,** ¶ 0082: terrain profile … planning together with encoded terrain; **EN:** terrain profile reads on statement to enable).

Claim 25, 26:

Gia modified by Bowman teaches the method of claim 8, wherein the step of authoring the second session includes associating the second session with one or more analysis types defining the kind of analysis performed by the second session (**Gia,** ¶ 0048: The boundary type of an obstacle; **EN:** the boundary type defines the type of analysis of navigation algorithms).

Claim 27:

Gia modified by Bowman teaches the method of claim 15, further comprising querying said analytic assets to understand their intent, purpose and analytic function to promote reuse when authoring other analytic assets (**Gia, ¶** 0047: the query node).

Response to Argument

9. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Examination Considerations

10. Examiner has cited particular columns and line numbers or paragraph numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the Applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. The entire reference is considered to provide disclosure relating to the claimed invention.

Conclusion

11. Claims 1-27 stand rejected.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALPANA BHARADWAJ whose telephone number is (571)270-1641. The examiner can normally be reached on Monday-Friday 7:30am 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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